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Customers' Shopping Patterns in Retail Food Stores

An Exploratory Study

UNITED STATES DEPARTMENT OF AGRICULTURE • Economic Research Service • Marketing Economics Division

PREFACE

This report represents one phase of a broad program of research which is being carried out to assist producers and distributors of agricultural products in maintaining and expanding market outlets.

The research results are designed to improve sales of farm products by indicating more effective product arrangements and better merchandising techniques in retail food stores. Application of the results will help producers as well as retailers in capitalizing on impulse buying and thereby maximizing total purchases per shopper per store visit.

The research was conducted under the general direction of George H. Goldsborough, formerly of the Market Development Research Division, Agricultural Marketing Service. Hugh M. Smith was project leader. The cooperation of Stop and Shop, Inc., in making available its retail stores in Boston, as laboratories, made this study possible.

This report was originally issued in August 1960 by the Market Development Research Division of the Agricultural Marketing Service as AMS-400. It is now reissued, without change in text, by the Marketing Economics Division, Economic Research Service.

CONTENTS

Page

Summary.......... 3
Introduction.......... 4
Procedure.......... 5
General observation on shopping patterns.......... 7
Factors affecting customer shopping pattern.......... 9
  Continuous gondola versus split gondola.......... 9
  End displays.......... 9
  Arrangement of commodities.......... 11
  Location of departments.......... 13
Other factors observed.......... 13
  Use of shopping list.......... 13
  Distribution of shopping time.......... 14
  Island displays.......... 14

Washington, D. C. December 1962

CUSTOMERS' SHOPPING PATTERNS IN RETAIL FOOD STORES

An Exploratory Study

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SUMMARY

An exploratory study of the patterns of shopping of 3,200 customers in 13 retail food supermarkets in a northeastern city revealed that customers were exposed to about 64 percent of the store's display locations, spent less than 23 minutes shopping, made 13 purchases per store visit at an average value of 56 cents per purchase. Purchases on the average, increased at the rate of about 6 per 15 minutes in the stores.

About 30 percent of the customers observed used a prepared shopping list. Customers using a shopping list averaged four more purchases, shopped longer in the store, and spent approximately 4 to 6 cents more per minute than customers not using a list.

Customer traffic flow was concentrated along the perimeter of the stores, including grocery gondola ends, and in the cross aisles of grocery gondolas. Both areas were well above the store's average of 64 percent.

Sample stores with continuous grocery gondolas generally experienced greater coverage and a more evenly distributed customer traffic flow in the grocery area than those which had the gondolas divided into unequal lengths forming a cross aisle in the grocery department. Twenty-five percent of the customers observed in stores with continuous grocery gondolas shopped the entire selling area of the store, while only 5 percent completely shopped the stores with a cross aisle in the grocery department.

The customer flow data indicate that the strategic placement of "power" or "demand" items such as bread, beef, or paper products, which customers regularly buy, can be used to advantage to distribute customer traffic throughout the store's selling area. As a result, customers would be exposed to more products and might add to their purchases.

In a test store, where bread was displayed first in the bakery department with respect to traffic flow, concentration of shoppers was 80 percent at this point; only about 40 percent of the shoppers continued through the bakery department. After the white bread display was relocated and was placed last in the line of the customers approach in the bakery department and the other breads were placed on the top shelf of the bakery rack in a ribbon display, cake sales increased noticeably, while bread sales remained unchanged. Other

food commodities which showed considerable drawing power were cookies and crackers, which were purchased by nearly 30 percent of the approximately 3,000 customers observed; coffee, 25 percent; canned vegetables, 24 percent; and cereals, 23 percent. Among nonfoods, the most frequently purchased commodities were paper products, nearly 35 percent; soaps, 27 percent; and health and beauty aids, 18 percent.

Special displays at the ends of gondolas accounted for less than 3 percent of store purchases, although they occupied the equivalent of 50 linear feet of shelf space. This much space on the regular shelves accounted for about 6 percent of purchases in the test stores. Also, when end-of-gondola displays contained sale-priced items, promoted intensively, traffic around these displays increased, but an equal and opposite change in traffic flow was observed in the aisles of the grocery department. This indicated that locating displays of sale-priced and promoted grocery items within the gondolas rather than placing them at the ends may result in a more desirable distribution of customer traffic flow in the grocery department. Sale-priced items which are generally traffic builders themselves can be used to draw a larger proportion of shoppers into the grocery aisles, increasing product exposure of items on regular shelves and possibly improving total sales. Also, such change would free those naturally high traffic areas around ends of gondolas and make them available for displaying specialty foods, new or discontinued foods, or high markup impulse food or nonfood commodities, and thereby benefit overall store sales.

The location of produce and meat departments relative to traffic flow had no apparent effect on the percentage of total store purchases accounted for by each department. When the produce department was located near the entrance and was first in the normal path of the customers, produce sales represented about the same proportion of the total number of purchases as when it was located elsewhere. A like situation was found for meat.

INTRODUCTION

The retail food industry has undergone fundamental changes and enjoyed substantial growth during the past 25 years. Seemingly overnight, many neighborhood stores developed into or were replaced by self-service food stores. At the beginning, these stores handled primarily, if not exclusively, dry grocery items. Later, these self-service food stores added perishables such as dairy and bakery products, meats, produce, and frozen foods as well as nonfood items. At first, the inclusion of some of these items was merely a means of accommodating grocery shoppers. But in a relatively short time, the desire for one-stop shopping increased the demand for these convenience items. With this growth in demand came the need for additional display space. As a result, small stores were either remodeled to provide added selling space, or replaced with newer and larger stores, now known as supermarkets. The trend toward larger stores with more items offered for sale has been continuous.

In 1950, the average supermarket had about 10,000 square feet of overall area and offered less than 4,000 items; by 1958 the average supermarket had increased to approximately 20,000 square feet of total area and offered 5,000 or more items. 1/

Continued increase in variety of merchandise and store size has resulted in problems relating to the product location and patterns of in-store shopper traffic. Since a large portion of purchases at retail level is made on impulse, it is distinctly advantageous for retailers to expose every shopper to as many items as possible to achieve maximum sales. 2/ Through in-store studies of customer traffic it is possible to appraise the influence of store layout and commodity locations on customer shopping habits and efficiency of store operation. This type of research supplements other data available to the retailer, such as turnover and gross profit.

PROCEDURE 3/

During the 10-month period February through November 1957, the U. S. Department of Agriculture collected approximately 3,200 customer traffic patterns in 13 retail food supermarkets, about 250 per store, in Boston, Mass. These stores each had annual gross sales greater than $1 million.

To obtain the exact pattern or path of movement for each customer observed, a replica of the store layout was reproduced for each of the 13 stores. Enumerators stationed in the sample stores used a separate store layout sheet for each shopper followed (fig. 1). Customers without a shopping cart were not included in the sample. The majority of the patterns taken were for single shoppers; however, some patterns of husband and wife and mother and children combinations were also recorded. The combination patterns were included with female groupings in all tabulations made. All patterns included in the analysis were recorded without awareness of the customer.

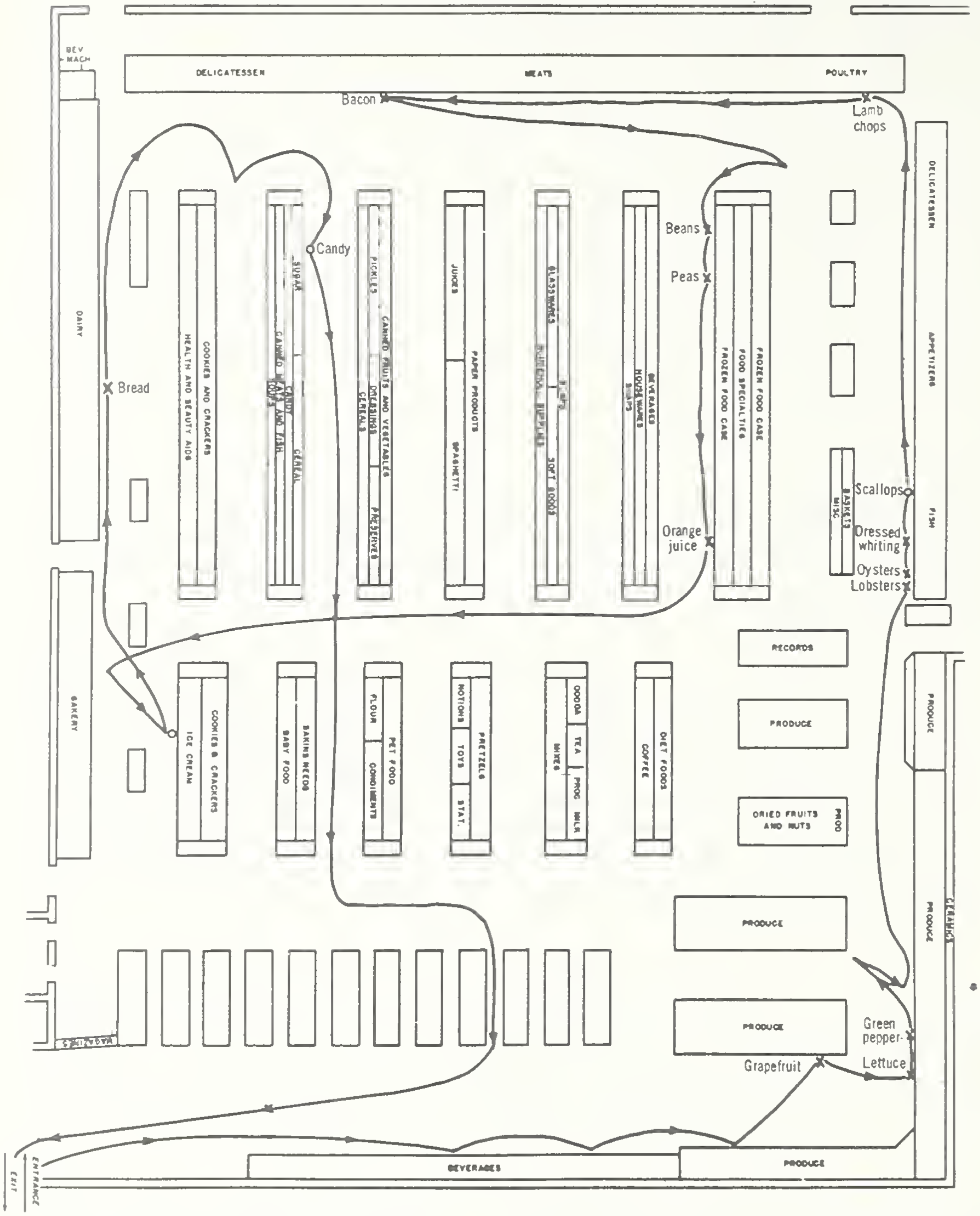
In addition to recording the path of the customer, enumerators indicated the purchase and inspection of each commodity made by the customer. Visual inspections were not recorded. Commodity purchases were recorded as one purchase regardless of the number of units or packages or the mixture of package sizes or brands bought. In no case did the enumerator endeavor to record the value of the individual commodities purchased.

1/ An item is a single size of one brand of food or nonfood product. Information on growth in size of supermarkets is given in (1) "Facts in Grocery Distribution," Progressive Grocer, 27th annual edition, 1960, p.3, and (2) "Facts About New Supermarkets Opened in 1958," Supermarket Institute p.5, 1959.

2/ "50.9 percent of all super market purchases are made on impulse--without any previous plan--and 69.5 percent of all super market purchases are store decisions--buying decisions made in the store," according to "Master Summary--Today's Buying Decisions, 6th DuPont Consumer Buying Habits Study, E. I. DuPont de Nemours & Co. (Inc.). 1959. Wilmington, Delaware.

3/ Additional details regarding procedure are in "Uniform Methods for the Collection and Presentation of Basic Customer Shopping Data," by Hugh M. Smith. U. S. Dept. Agr., Agr. Mktg. Serv., AMS-367, 12 pp. February 1960.

EXAMPLE OF DATA COLLECTED FOR EACH SHOPPER, RETAIL FOOD STORE TRAFFIC STUDY



1. Date: *OCT. 29, 1957*

Time in *4:00*

Time out *4:15*

2. Age (approximately)

____ 18 and under

____ 18 - 30

✓ 30 - 50

____ 50 and over

3. Sex

____ Male

✓ Female

4. Use of Shopping List

____ Yes

✓ No

5. Amount of Purchase *

$ *8.14*

6. Remarks:

*(Purchases were noted by an X and inspections by a zero.)

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Figure 1

GENERAL OBSERVATION ON SHOPPING PATTERNS

Analysis of the 3,200 customer shopping patterns showed that customers averaged 13 purchases per store visit and passed only about 64 percent of the store's display locations. Particularly heavy concentration of customer traffic was observed at ends of grocery gondolas, front and rear, as well as in cross aisles. However, purchases were smaller in those areas relative to traffic volume than in other areas of the store (fig. 2). This is true partly because displays in those locations contained a limited selection of commodities, plus the fact that many people used such avenues as short cuts to other areas rather than for shopping.

SHOPPER TRAFFIC IN SUPERMARKET "A" BOSTON, MASS. 1957
(STORE AFTER REARRANGEMENT)

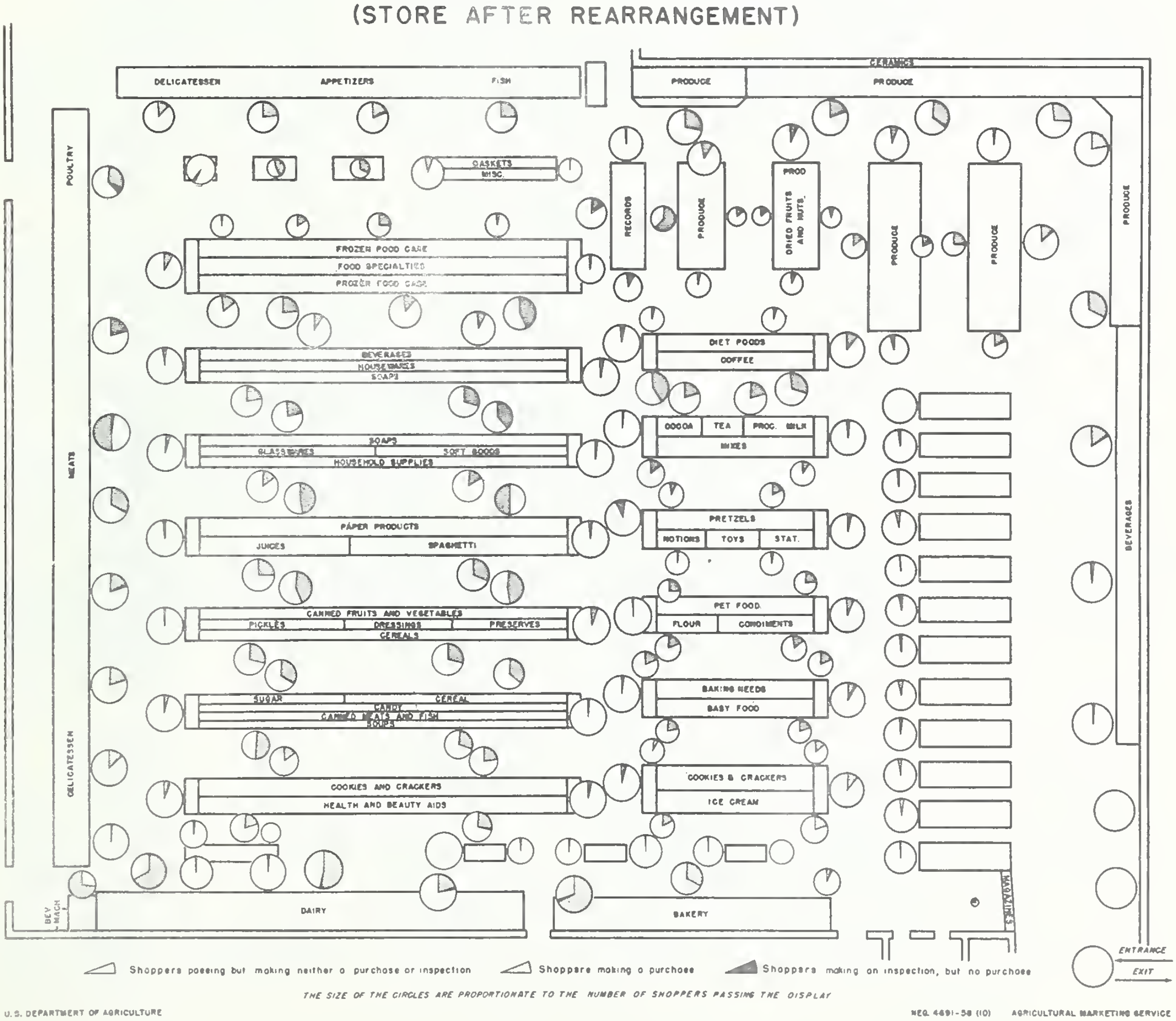

Figure 2

TYPICAL PATH OF SHOPPER COVERING ENTIRE STORE

With Less Than Average Number of Purchases

PATH OF SHOPPER IN RETAIL FOOD STORE

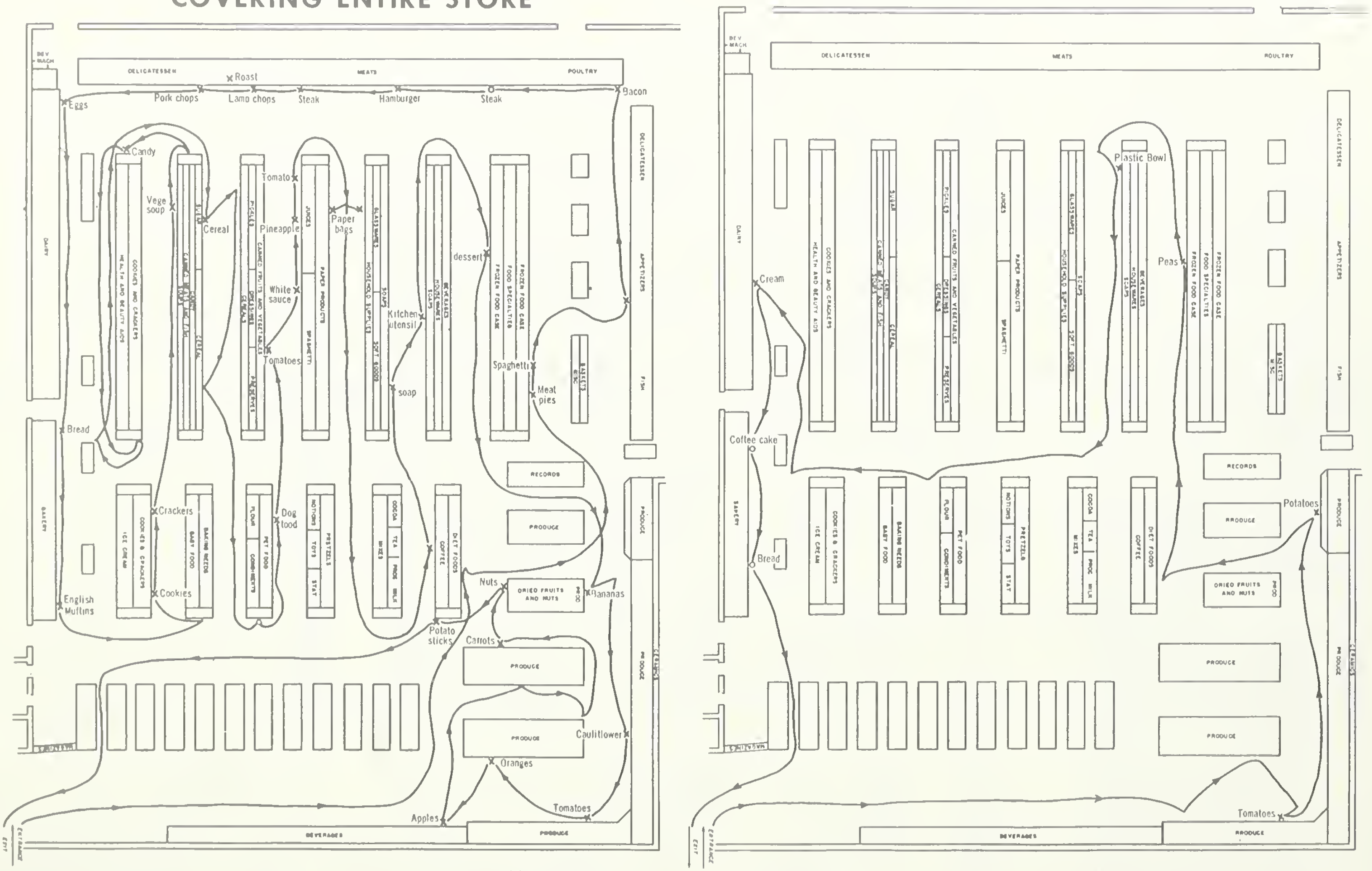

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Figure 3

There was considerable variation among shoppers in overall store coverage (fig. 3); and purchases were generally related to the degree of store coverage. Customers who shopped the entire selling area of the store spent, on the average, more than twice as much per store visit ($12.30) as those who shopped only in selected store areas ($5.70).

Results of independent surveys indicate that a high percentage of retail food purchases are unplanned. It seems reasonable, therefore, to assume that arranging products in the store so that customers pass more of them should result in larger purchases per customer per store visit.

FACTORS AFFECTING CUSTOMER SHOPPING PATTERN [4]

Continuous Gondola Versus Split Gondola

Observations of customer traffic flow were made in stores with two different types of layout in the grocery department. Some had continuous gondolas and others had a cross aisle which split the grocery gondolas into unequal lengths at about a 2 to 1 ratio. Stores without cross aisles had greater and more evenly distributed traffic flow in the grocery aisles than stores with cross aisles.

In stores with cross aisles traffic flow in the long aisles averaged 20 percent more than in the short aisles (fig. 4). There are strong indications that customers tend to shop the short aisles visually from the ends instead of walking through the aisles. This type of long distance shopping is not conducive to impulse sales.

Only 5 percent of the more than 800 customers observed in stores with cross aisles visited every aisle, compared with 25 percent of the over 2,000 observed in stores without cross aisles. This wide difference further emphasizes the disadvantages of the split grocery gondolas.

If the retailer dislikes continuous gondolas, it may be advisable to alternate the long and short sections, and thereby eliminate direct cross aisles. Or the gondolas may be divided into equal lengths, and the more popular items may be arranged in a way to achieve a more even distribution of traffic.

End Displays

Special displays have been in wide use, and their use is expected to continue in retail food stores because they provide flexibility in display locations and attract attention. These are desirable attributes for volume selling. Special displays contain mostly staple items that are sale-priced and generally advertised; they are oftentimes placed at the end of grocery gondolas. When this situation was observed in the experiment, a noticeable decrease in traffic was noted in the aisles of the grocery gondolas. Apparently, many purchasers of the specials found it unnecessary to explore further for their shopping needs.

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[4] These are factors which were observed and are not intended to be all-inclusive. Other factors not observed in this experiment can and do affect customers pattern of shopping and purchases in retail food stores.

After Rearrangement

TRAFFIC FLOW IN RETAIL FOOD STORE

Percentage of Total Shoppers Passing Selected Locations, Store A, Boston, Mass., 1957

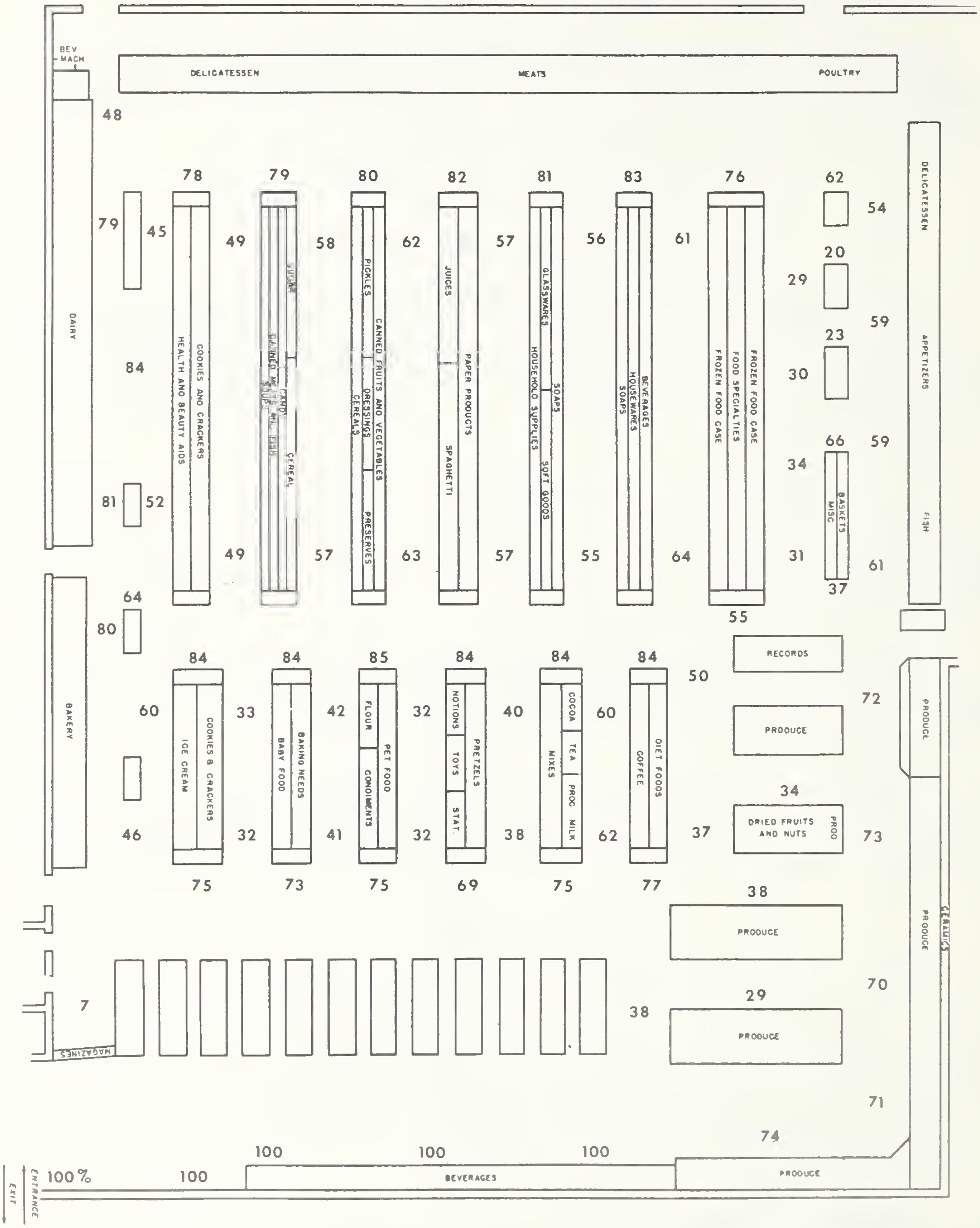

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Figure 4

A high percentage of traffic (70-90 percent) naturally flows by the end of gondolas. Therefore, the retailer should consider featuring items on end displays which will increase impulse sales most. Specialty foods, new or discontinued foods, or nonfoods such as light bulbs, magazines, hosiery, hardwares, are just a few of the many possibilities for consideration. Traffic builders, such as the advertised specials, could then be placed within the gondola sections to improve the overall distribution of customer flow in the aisles of the grocery department and maximize product exposure. Such displays must be placed strategically so that they will draw customers to the desired areas without creating undue traffic tieups. Examples of suggested locations and arrangements of special displays are shown in figure 5.

Arrangement of Commodities

It is common knowledge that certain foods have greater drawing power than others, because of the number of customers demanding them and the frequency of purchase. It was found that cookies and crackers were the most frequently purchased foods, and paper products were the most frequently purchased nonfood items. Of the 3,200 customers observed, 30 percent bought cookies and crackers, while 35 percent bought paper products. Other food commodities which showed strong drawing power were coffee, 25 percent, and canned vegetables, 24 percent. Among the nonfoods, soaps, 27 percent, and health and beauty aids, 18 percent, were the leaders.

These percentages represent the number of customers making a purchase and are not the same as turnover data, which generally show the quantity or dollar volume of sales for commodities. Turnover data are important, but they do not always give the needed information with respect to the number of customers responsible for a given quantity or dollar volume of sales.

A specific example of the practical application of customer traffic flow observation was noted in the bakery department of one of the 13 stores included in the study. Bread in this store was displayed at the head of the bakery department with respect to traffic flow. An analysis of the traffic concentration revealed that 80 percent of the customers observed coming into the store reached the bread display in the bakery department, but only 40 percent actually continued through the department. This observation prompted the store to place the white bread last in the bakery department and to display other breads in a ribbon fashion on the top shelf of the bakery rack. This relocation of bread resulted in a noticeable gain in sales of cakes while bread sales remained unchanged.

Another example where traffic distribution was altered by the shifting of selected commodities was observed at the coffee display in one store. Customer traffic was initially 54 percent at the coffee display; when tea and cocoa were placed opposite the coffee display, customer traffic in that aisle was over 60 percent.

SPECIAL DISPLAYS ADAPTED TO SELECTED TYPES OF GONDOLA ARRANGEMENTS

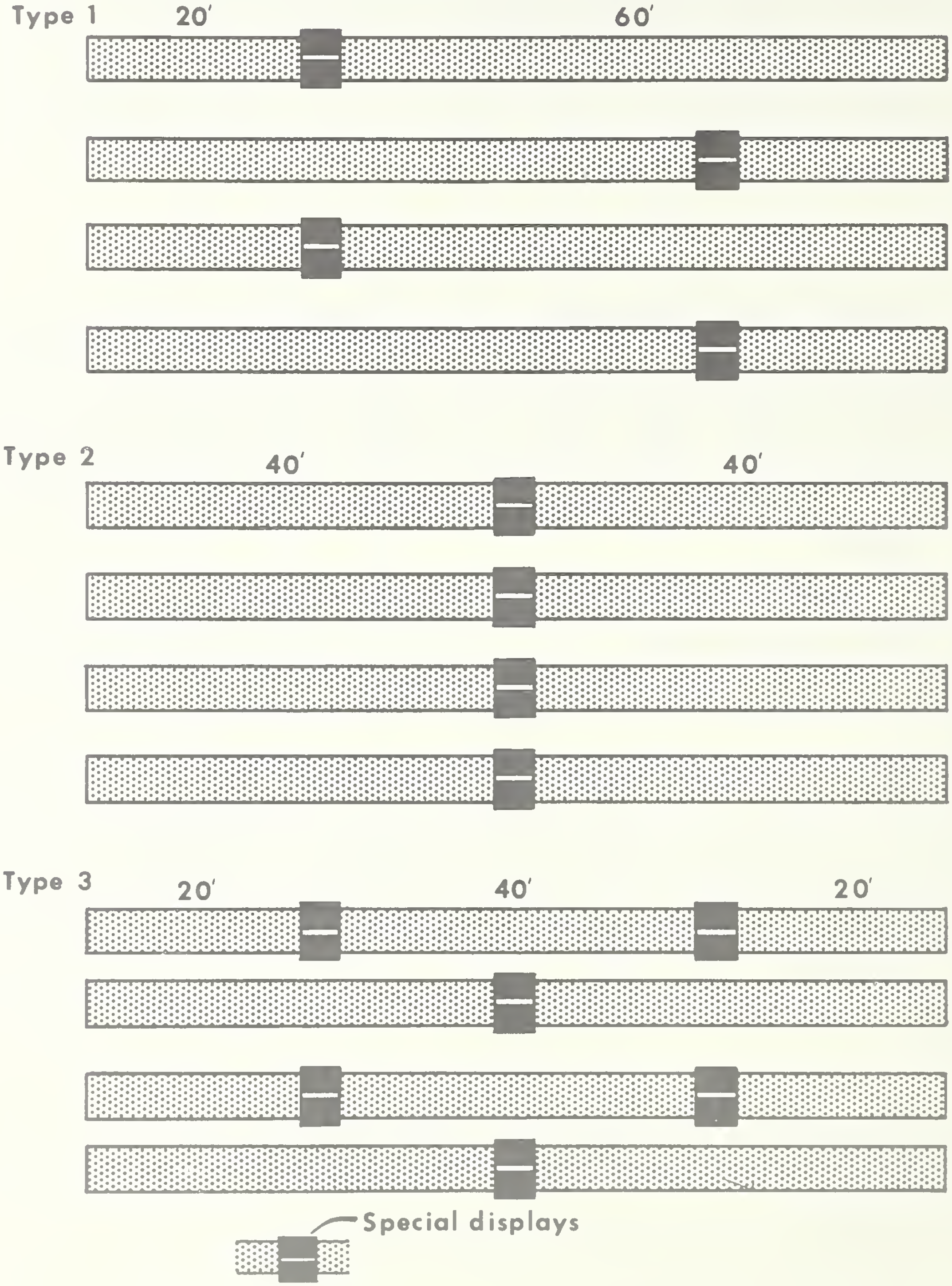

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Figure 5

Location of Departments

Of the 13 test stores, 8 had produce first in the line of customer traffic, 2 bakery, and 3 meat. 5/ The relative position of each department had no apparent effect on the pattern of customer traffic flow in that department. Customers went about their business of selecting their needs in each department as they came to them, rarely bypassing a department to return to it later.

With respect to purchases, produce accounted for 17 percent of all purchases and meat for somewhat less than 13 percent. In both departments these ratios were the same regardless of where each was located relative to the store entrance or customer traffic flow.

Nearly 70 percent of the customers shopped in the bakery and dairy departments regardless of the location of these departments. Since traffic volume and purchases in these departments are unaffected by location, management has a great deal of flexibility in locating each department so as to draw traffic through desired areas. The two departments in the test stores, however, were often located adjacent to each other, resulting in overcrowding during peak shopping periods and reduced use of each department's drawing power.

OTHER FACTORS OBSERVED

Use of Shopping List

Thirty percent of the customers studied used a shopping list, and those with a list averaged four purchases more than those without a list. Of the total customers observed using a prepared list, 30 percent spent under $5 each, 37 percent spent $5 to $10, 27 percent spent $10 to $20, and only 6 percent spent $20 or more.

Customers using a prepared list shopped longer and spent 4 to 6 cents more per minute than customers without a list. Male customers with shopping lists spent 62 percent more for their total orders than those without lists. Female customers with lists spent 35 percent more than those without lists.

Retailers might consider encouraging the use of shopping lists. A diagram of the store layout showing the location of major commodity groups might also be useful. Use of a store diagram might encourage some shoppers to detour certain store areas. But in the long run it might provide the majority with a more orderly shopping pattern and enable them to concentrate on purchasing their needs rather than constantly searching for certain foods.

5/ The produce department was second to meat in the line of traffic in two stores, second to bakery in two, and last in one. The meat department, if not first, occupied an intermediate position, and the location of the bakery department varied.

Distribution of Shopping Time

Customers averaged about 19 minutes in the store Monday through Wednesday and made 10 purchases. Thursday through Saturday, they averaged 26 minutes in the store and made 15 purchases. The rate of expenditures for each part of the week was the same, 31 cents per minute.

Additional time spent by shoppers in the store generally increased the sales at the rate of about 6 purchases per 15 minutes.

Island Displays

Island displays were prominently used in the produce, delicatessen, dairy, and bakery departments of the sample stores. The inefficiencies of this type of display with respect to customer flow were particularly noticeable in the produce department where they were used most extensively. Because of their low design, island displays, when clustered, enabled customers to scan shelves from a distance; these islands also provided short cuts from the customers' usual shopping route. Both conditions are undesirable for optimum impulse sales. Also, sales per square foot from these displays did not compare favorably with sales from the regular or permanent displays. Further research is needed, however, before the usefulness of special island displays can be fully evaluated.